PVRC Newsletter October 2017

President's Letter – Bud W3LL

Hello, PVRC .

The 2016/2017 running of the six inning NAQP game ended with SMC claiming the Club Cup Challenge. SMC rightfully won the game with a sixth inning SSB surge that dominated the competition by achieving the highest turnout ever in a NAQP event. The cup is now on its way to the rightful winner.

I found the following in the latest edition of the ARRL newsletter about our three-club NAQP competition: "In any size of contest or radio club, it's important to have members that are active during contests. To encourage activity, some clubs participate in inter-club competitions. One such competition is the "NAQP Challenge" between the Northern California Contest Club (NCCC), Potomac Valley Radio Club (PVRC), and Society of Midwest Contesters (SMC). In 2017, the SMC won! According to Craig, K9CT, "It was a tough battle. Other clubs could shamelessly borrow the rules from this *friendly competition*, pick some competitors, and do the same thing."

The PVRC 20 For 20 competition, created to celebrate the 20th anniversary of the 5M program, ended with 26 members having earned a "20 for 20" certificate for their on-the-air contesting efforts in the past year. Congratulations to all who contributed to the 5M contests.

The follow on to the 20 FOR 20 program is the Olympics Award. It began a few months ago with the start of the 2017/2018 5M program. The PVRC Olympics is an annual program running concurrently with the PVRC 5M program, throughout our contest year. Each year, all PVRC members start with a clean slate and a chance to earn a PVRC Olympic Medal Award.

Annual PVRC Olympic Medal Award Qualification Requirements:

Gold Medal Award:

- Submit logs in both modes of Sweepstakes, with at least 200 QSO's in each mode
- Submit logs with at least 50 QSO's each in an additional thirteen 5M contests
- Attend at least three PVRC chapter or event meetings
- Do three or more of the following:
    - Sponsor a new member
    - Submit an article or pictures for the PVRC Newsletter
    - Enter at least one 5M contest in RTTY mode
    - Submit a score in the PVRC reunion
    - Contribute at least $30 to PVRC

Silver Medal Award:

- Submit logs in both modes of Sweepstakes with at least 150 QSO's in each mode
- Submit logs with at least 50 QSO's each in an additional eight 5M contests
- Attend at least two PVRC chapter or event meetings
- Do two or more of the following:
    - Sponsor a new member
    - Submit an article or pictures for the PVRC Newsletter
    - Enter at least one 5M contest in RTTY mode
    - Submit a score in the PVRC reunion
    - Contribute at least $20 to PVRC

Bronze Medal Award:

- Submit logs in both modes of Sweepstakes with at least 100 QSO's in each mode
- Submit logs with at least 50 QSO's each in an additional three 5M contests
- Attend at least one PVRC chapter or event meeting
- Do one or more of the following:
    - Sponsor a new member
    - Submit an article or pictures for the PVRC Newsletter
    - Enter at least one 5M contest in RTTY mode
    - Submit a score in the PVRC reunion
    - Contribute at least $10 to PVRC

Rules and Definitions

1. Contest Term: The PVRC contest year is concurrent with the PVRC 5M program – July 1st to June 30th each year. All eligibility requirements are annual requirements to be met during the contest year.
2. Multiop: Operating at a multiop whose scores are credited to PVRC will count as a "score" toward the 5M contest participation requirement without counting how many QSO's the member actually made, for each PVRC member participating in the multiop. The total number of QSO's divided by the number of operators must equal at least 200 for SS Gold, 150 for SS Silver, 100 for SS Bronze and 50 for

all other 5M contests. To Encourage station owners to host PVRC operators, Matching Award Points will be awarded to any station owner who hosts a PVRC operator who generates an eligible score. The Matching Award Points will be equal to that of the operator's Award Points. If the host was also an operator, his score will be doubled. The host/operator of a multi-op effort will be capped at twice Max Points.

3. Outside the Circle: Special rules for members residing outside of the PVRC circles:
    a. The Sweepstakes requirements are still in place, even if they do not count toward PVRC totals.
    b. 5M contest log submission goals are reduced in view of the number of 5M contests with no circle residency requirement:
        i. Gold level: 10
        ii. Silver level: 7
        iii. Bronze level: 4
    c. The meeting or event attendance requirement is waived.
    d. Should a member move into or out of the circle during the contest year, the qualifying requirements will be those coinciding with their QTH as of the last day of the contest year.
    e. Should a member operate from multiple QTHs both in and out of the circle during the contest year, he or she must qualify as an "in-the-circle" member.
4. Log Eligibility: Submitted logs must be compliant with the contest sponsor's rules, and provide scoring credit (of at least the minimum number of QSO's) to PVRC. Check logs and disqualifications will not count toward PVRC Olympic Medal awards.
5. Mode Requirements: The requirement to submit a log in each mode (RTTY/CW/SSB) may be spread across multiple contests; for instance, SSB and CW might be in Sweepstakes, while RTTY might be CQWW. All three modes need not be in the same contest.
6. Attendance: To meet the requirement to attend chapter meetings or events, members must ensure their attendance is reported via the online Meeting Attendance Report .
7. New Members: To meet the requirement for sponsoring a new member, that new member must be voted into PVRC before June 30.If the new member is introduced in June but voted-in after June 30, credit for this element will be given in the next year, the year in which they were voted-in.

Award Process

1. Track your contest participation progress throughout the year by viewing updates to the 5M program. Raise any questions or concerns throughout the year as they happen.
2. No application is necessary!! As your scores are credited in the 5M program, they make you eligible for these annual awards.
3. June 30th is the final day to qualify for awards. All qualifying activity should be completed by then, although log submissions for contests held before June 30th may extend beyond this date. Activities like meeting attendance or sponsoring a new member cannot be rolled forward or backward into other years.
4. Following June 30th, PVRC officials will tally the results and announce that year's PVRC Olympic Medalists.

1M-4M Awards - Tim N3QE mailed certificates to the 75 "active" award winners.

Administering the PVRC awards program is no easy task. Appreciation goes out to Alan AA4FU for the 5M program and to the PVRC officers who turn suggestions from the membership into an award by creating the rules, designing the award certificate or plaque, producing and distributing all to the winners

.

Treasurer Tom K3AJ just ordered all the plaques for the 5M program, endorsement plates, Presidents Leadership Awards and Top Gun Award. Tim created artwork, produced and mailed the parchment awards. Thanks go out to all our volunteers. Without them we could not do what we do. Also, please remember to thank your chapter chairman. His tasks are not trivial.

Jay W3MMM is hard at work producing the PVRC 70th Anniversary on the air Special Event program. Jay reports:

"We will celebrate 70 years of PVRC excellence with our PVRC on-the-air special event, to be held Dec 28, 29, 30, through 23:59z on Dec 31, 2017. As an operator, you will get a special callsign; N4P, N4V, N4R, N4C, plus W3GRF and W3AU, for 6 total callsigns in the event. You'll operate from your own (or someone else's) station, for as long or as little as you'd like. All US-based PVRC members are welcome to participate as operators - particularly those of us with smaller stations! All hams (PVRC members and not) will attempt to work all six callsigns over the four days to earn a clean sweep! K3LU will handle all QSLing.

I've already submitted to ARRL/QST and we will be listed as 'near the 47s' as in the reunion. QST will list us 6 times, once under each call we're going to use.
And I had the choice if I wanted this info to be in the QST mailing in early November (Dec issue) or December (Jan issue), I chose December mailing (Jan issue) simply as it would be more immediate to the event. Of course, the risk is that some people don't flip to that page by the time our event starts… My hope is that the on-the-air activity is the real impetus for people to jump in.

As we get closer and begin to promote this to other folks, particularly YCCC and FRC, we may want to point out how we supported their efforts. And fortunately, I sense the coming FRC event will be more of a harbinger of our own.

Each morning during the event I will be sending a "today in the party" report to the reflector. This will note available calls / bands / modes / times each day and encourage members to just jump in. All they have to do is just check the skimmer to see if anyone else is on right then, spot themselves to show the call is in use, and keep/submit a log as they operate.

N4P, N4V, N4R and N4C are available to all. On-air times are December 24, 1700z to Jan 1, 2359z- over one full week

.

This is an all-you-eat buffet, take as much as you'd like, the more the merrier. People may work different callsigns at different times; choose multiple days or long stretches, whatever they think they can work. Big guns and little pistols encouraged.

Members may also request W3GRF and W3AU; however, use of these callsigns will be subject to approval by the call trustees. While I can't predict who they will approve or not, my understanding is that they are looking for ops who had some personal connection to the original call holders.

QSL cards will be a collage of the historic callsigns and will be printed into 6 different QSL cards. The PVRC logo and a few sentences will go on the back of each card - loud and proud!!! This was pretty fun to do. I hope you like it! For some chasers, this will be the 'carrot' - the chance to collect and form a single picture collage. For the operators, particularly the OT's, it will be an incentive to honor the people pictured herein." Ulis K3LU volunteered to be our QSL manager.

Jay Horman added a photo in Potomac Valley Radio Club (PVRC) -- Amateur (ham) Radio Contesting.

Jay Horman
September 2 at 7:47am

PVRC wants YOU!
Our 70th Anniversary On-Air party needs operators! Held the last week of Dec, you operate your own station using one of our special calls.
ARE YOU IN??
PM me to sign up now! Join the 20+ PVRC members who will make this historic event a success.
de W3MMM

We all appreciate the hard work that Jay puts into creating and managing our upcoming 70th anniversary on the Special Event program! Please email Jay W3MMM if you'd like to operate a special callsign during the last few days of 2017 - any member can participate!

Up next is the NR4M PVRC-wide event on Saturday 30 September at noon time. I've been missing it each year because it's right in the middle of our cruise date. Last year I remembered to shift the date to not miss this great event again. Hope to see everyone there.

It's now time to look back at last month and see how all of us fared out in the world of contesting.

SPORTS PAGE

WAE SSB 2017? Are you kidding? An epic solar flare and the attendant disturbances made this an epically difficult contest. It looks like a lot of PVRC'ers appear to have blown this one off. Just 12 PVRC scores representing about 2,650 QSO's were reported this year vs. 32 entrants with just shy of 12,000 QSO's last year! Team KD4D (K3RA, KD4D, N3QE, N8IVN, W2CDO) truly did prove that they were "2S2Q" ("Too Stupid To Quit") and were rewarded with a top US finish in M/S HP with 861 QSO/501K. Another notable exercise in perseverance was scored by W3LL, with 418 QSO's, good enough for the #2 spot in the US at 162K. And PVRC member EA5DFV (competing from the other side) achieved the #4 spot worldwide in SO HP. Another notable effort was by team WA3EKL with a M/S HP entry for 250/74K. No other PVRC'er managed to break the 100 QSO barrier!

We don't always report on the sprints, but the September NA CW Sprint saw a pretty good turnout from PVRC. Let's let Lar, K7SV tell the story in his own words: "Nice to work a few PVRCers beyond the usual suspects in the CW Sprint yesterday. It was nice to hear N4ZR in the throw of things since Pete's move from WV to MD. Pete you had quite a good signal with the simple setup there! It was also nice to hear K4ZW. I think Ken has a few dipoles in the air in addition to the arrays on 80 and 160. Also, nice to hear KE3X back in there. You did well from the home station Ken! I managed to work Tom KG3V on 80 and 40. Ted N9NB is hard at work making his station down near Blacksburg VA super competitive. I think you need to think high power Ted! Last but not least, KT3Y was very active in this one. Hope Phil's property on VI hasn't suffered much damage from IRMA! Well, I may as well mention the PVRC regulars that I worked as well. N3QE helped N4ZR to ensure MD was in my log. Likewise, N4AF and N1LN assured NC. WJ9B was my only ID and K1IMI was my only ME! Thanks to all."

N3QE, K4GMH, K7SV and KS0CW all made a showing in the September NA RTTY Sprint. N3QE with 142/33/4,686 edged out K4GMH by 2 QSO and 66 points! K7SV also made a good score with 125/30/3,750.

There weren't too many fireworks in the September VHF contests, with 6M propagation being especially poor. There were some good tropo openings available on the higher bands at times. Proof of that is Bob, W3IDT's report from W3SO: "We knew it was going to happen, sooner or later. What is 'it'? Look at the summary of our results...432 has more grids than 50, and 220 has only one fewer than 50!" And, of course, 2M at W3SO led in grids with 52. W3SO is showing as the top Limited Multi-Op HP score on 3830 with 538/162/117K. In Multi-op HP, W3RFC put up a nice score with 150/58/14K. W3IP put up the top PVRC score in SO HP with 342/133/71K for third place overall in that category. N3HBX also made the top ten in that category with 285/83/31K and N3MK finished at 177/66/12K. In SO LP W3EKT took third place with 220/73/29K. K3AJ with 119/44/5K and WA7TOF/4 with 100/32/3K both broke the 100 QSO level in SO LP.

K5VIP put up the top PVRC score in SO 3Band LP with 45/22/1K. And yes, FT8 QSO's on 6M were a salvation for many.

Not quite having had their VHF fill, K3ZO, K3AJ, W3EKT and W3LL all put in some time in the September 2M Sprint.

And before we move on, let's recognize N2YO (at NR4M) for a big score in the YO DX HF contest with 735 QSO/681K for the top US score in SO Mixed HP. N4AF made the top 10 in SO CW HP with 254/174K. W2CDO also made over 100 QSO's in this one. In the Russian RTTY WW Contest WA3EKL has a score of 104K in Multi-op HP and W4PK broke 100 QSO in SOAB HP. The SAC CW was almost impossible due to very disturbed conditions, but W2CDO and W3GVX tried anyway and made a few QSO's.

That's it for me this month. See you on the bands.

73, Bud W3LL

PVRC Officers:

President:	W3LL	Bud Governale
Vice President:	K2YWE	Dan Zeitlin
Vice President:	W3TB	Tom Edwards
Secretary:	N3QE	Tim Shoppa
Treasurer:	K3AJ	Tom Valenti

Trustees:

K3MM, N3OC, WX3B, W4ZYT, N4NW, K2AV, KE3X, K4ZA, K3WRY

PVRC Charter Members (all SK):

W3GRF, W4AAV, W4KFC, N0FFZ, W4LUE, W7YS, VP2VI/W0DX, W3IKN, W4KFT

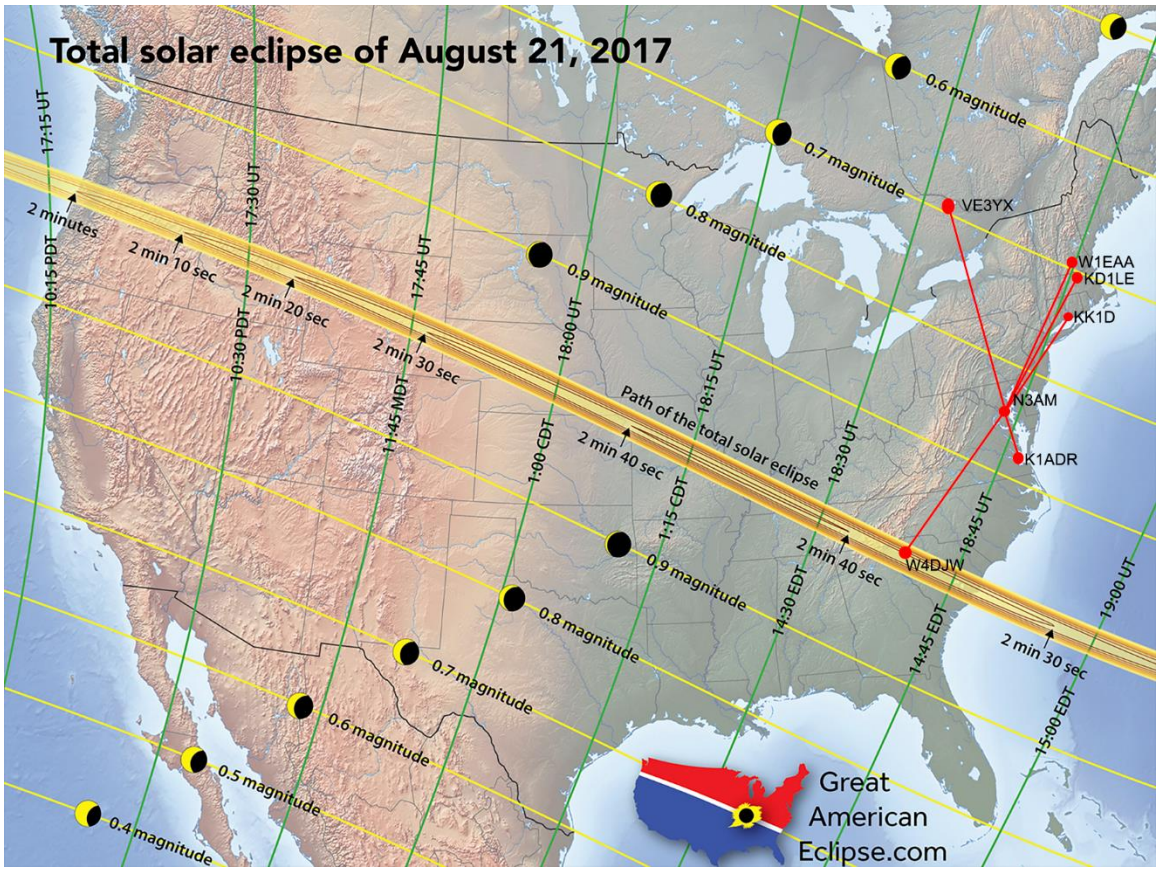
PVRC Website: http://www.pvrc.org

80m WSPR Signal Enhancements During the Solar Eclipse - John N3AM

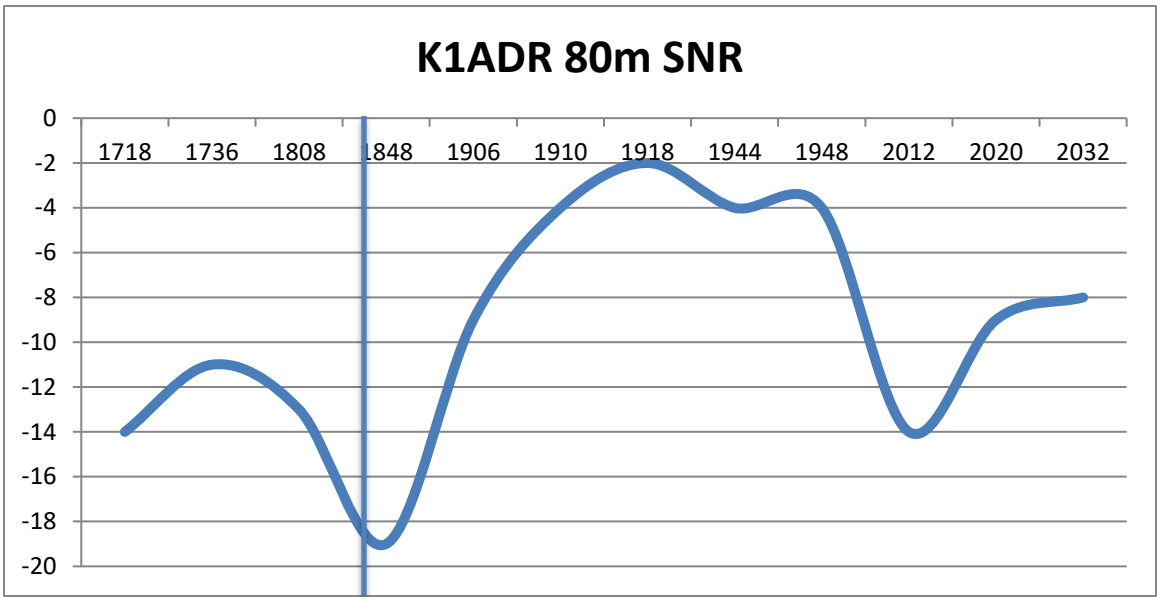
I ran my 200mW WSPRLite beacon on 80 meters before, during and after the solar eclipse to see what effect could be reported at various reception sites. My antenna is an inverted vee suspended from my tower, with the apex at 65 feet and legs running south and WNW.

I downloaded data from DXplorer.net to make plots of signal strength versus time. Even though I used the recommended settings that limit WSPRLite transmissions to 6 per hour, sent at random intervals, there was a clear signal enhancement around 1842Z, the time of maximum eclipse (81% coverage) in the DC area.

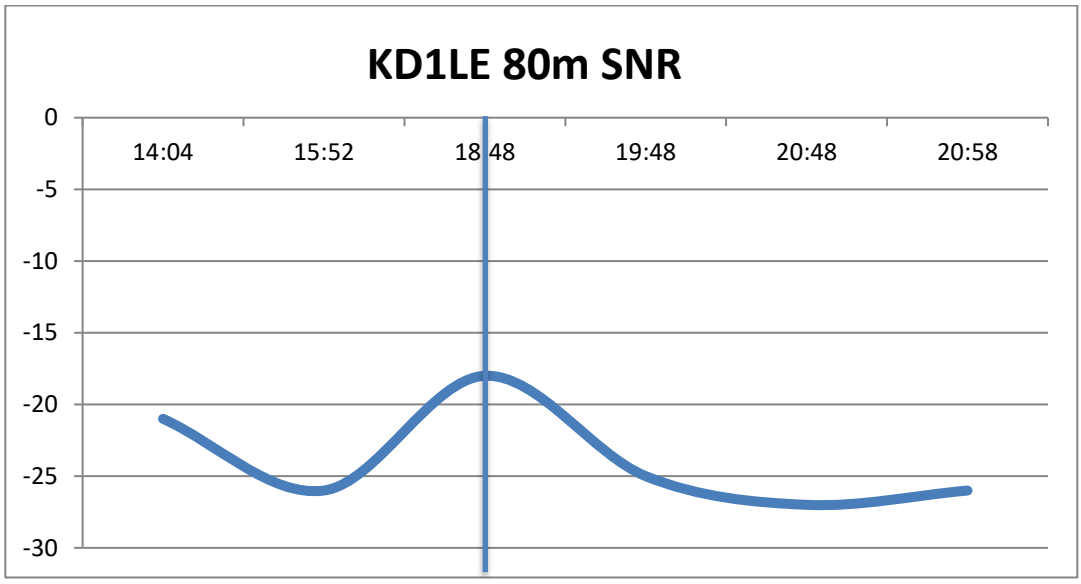
Reception sites are plotted on the map below.



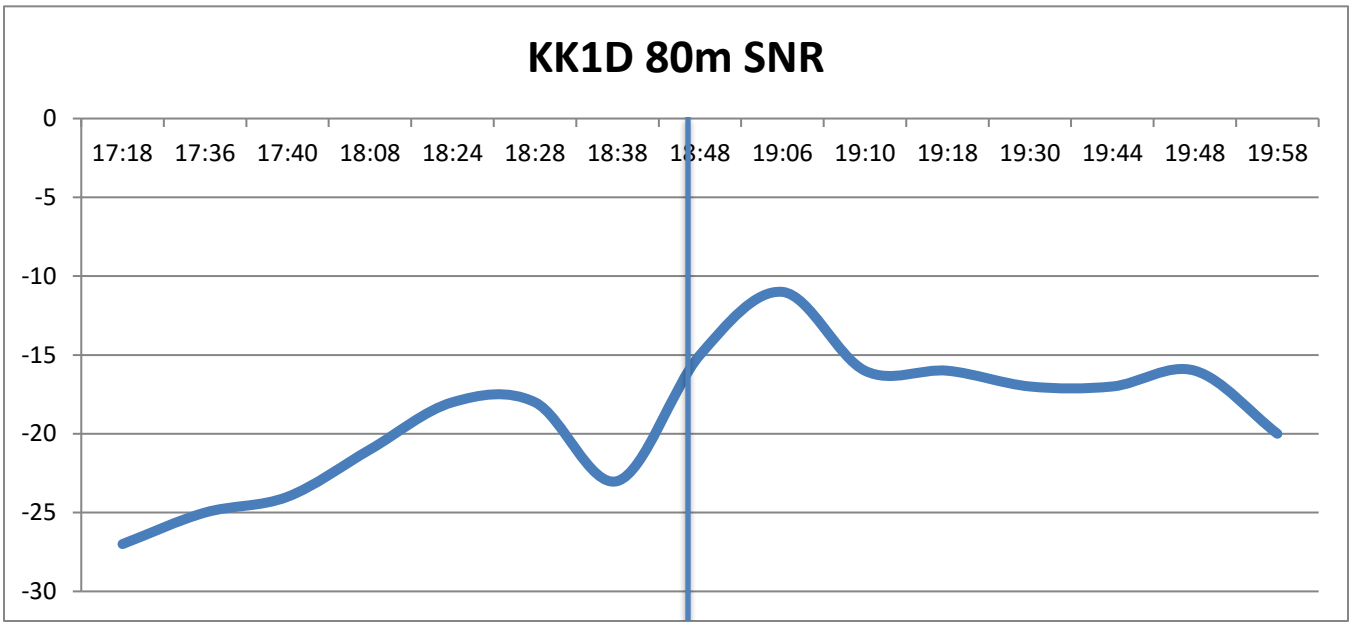
As noted in the following charts, signal peaks ranged from very close to maximum eclipse time at N3AM (1842 UTC marked with vertical line) to approximately 30 minutes later. K1ADR was the closest reporting station and exhibited the longest delay in peak response, possibly due to some NVIS path. KK1D at 455km from my QTH also showed a peak delay. W4DJW was in the path of totality and showed a marked peak just past max eclipse time, but so did most of the stations 600km or more distant from my QTH. The rise and fall of the received signals clearly indicate the impact on D-level absorption as the eclipse progressed.



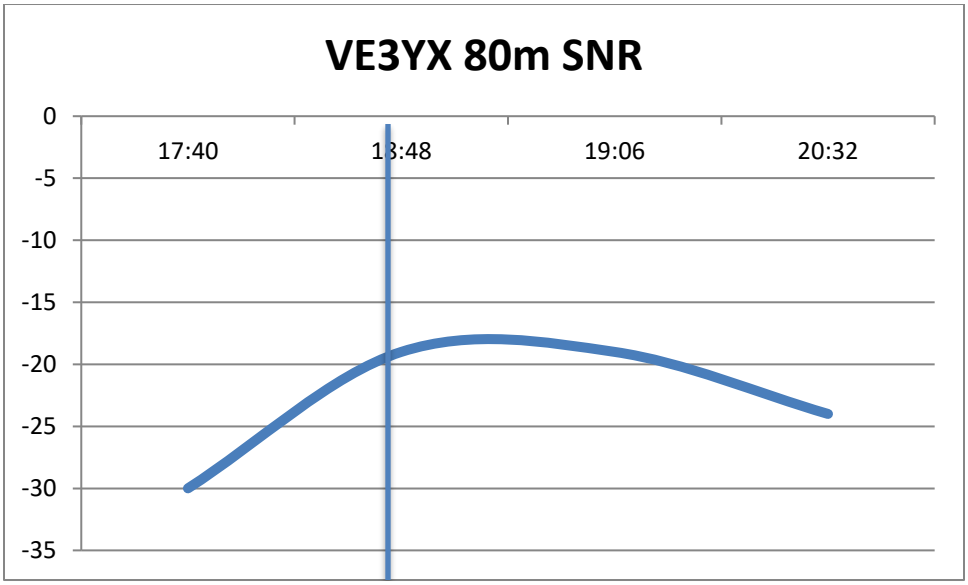
FM19lb =>FM17sb 275 km AZ 170



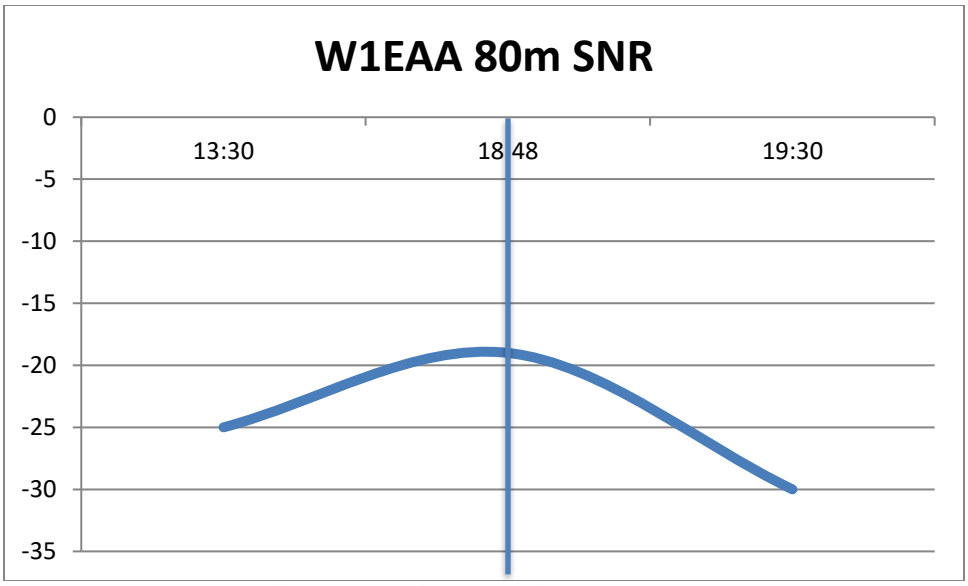
FM19lb =>FN42fp 576km AZ 51



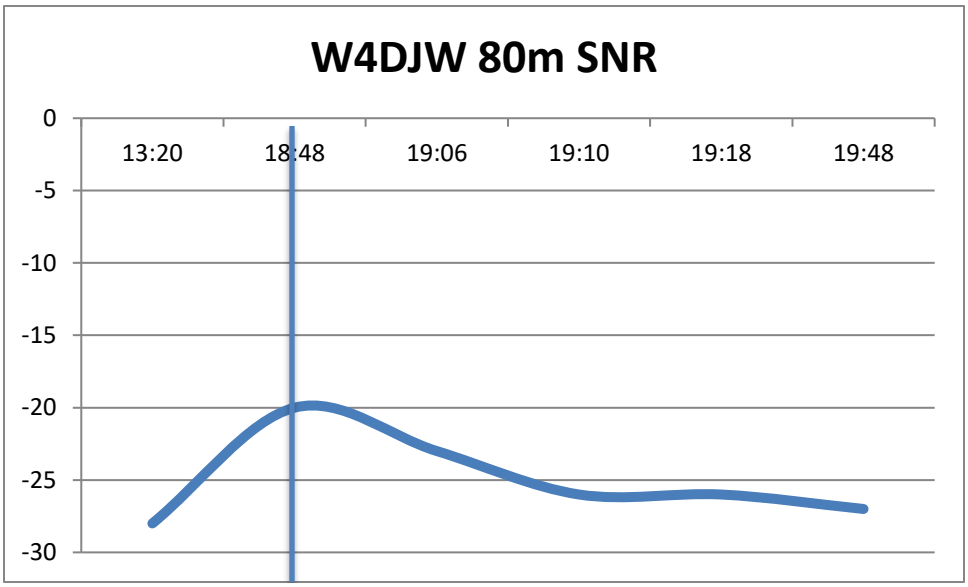
FM19lb =>FN31vi 455km AZ 62



FM19lb =>FN16fd 740km AZ 357



FM19lb =>FN42fx 598km AZ 48



FM19lb =>EM84ux 687km AZ 225

WSJT-X FT8 Operating Hints – Rich K1HTV

Unless you have been sleeping for the past few months, you probably already have heard that the new FT8 digital mode is catching on like wildfire. There are designated 2 KHz wide segments of FT8 on all bands from 160 through 6 Meters. If you tune in 20 Meters, don't be surprised to see dozens of FT8 users at 14.074 MHz. At this writing, after 8 weeks of operating the new mode and running 75 Watts or less, 133 DXCC countries (105 confirmed) are now in the K1HTV log. In the process of making these Q's, I've gain a little insight and would like to share what I have learned on how to be successful in making FT8 QSOs and how to improve the chances of your FT8 signal being copied.

Since the original early June Release Candidate (1.8.0 RC-1) of the WSJT-X digital software, a number of improvements have been made and operational features added. After months of work, The WSJT-X Development Team has now released WSJT-X version 1.8.0 RC-2.

Getting Started with WSJT-X and specifically, the FT8 mode

First, in order to understand the workings of WSJT-X and its various sub-modes, download the latest PDF version of the WSJT-X User Guide from here.

Next, download the WSJT-X software. It is available for a number of operating systems including Windows (runs on Win XP, Vista, Win 7, Win 8, Win10, both 32- and 64-bit), Linux and Macintosh OS X. You can download the latest Release Candidate, ***WSJT-X* Version 1.8.0-rc2** from here.

Installation and Setup of WSJT

- Install the Windows version of WSJT-X software by running "wsjtx-1.7.0-win32.exe"
- After the installation is complete, click on the **WSJT-X** icon to start the program.
- Tap the **F2** key to bring up the **Settings** tabs.
- Under the "**General**" tab, enter your **Call, your Grid** and for **IARU Region:** Select **Region 2** from the pull down menu.
- Tap the **Radio** tab.
- From the **Rig:** pull down menu, select your transceiver.
- Do the same for **Serial Port:** and **Baud Rate**: and **PTT Method**.
- Tap the **Test CAT** to verify that the radio and software are communication.
- Tap the **Test PTT** to see if the radio keys. Tap again take it out of transmit.

- Under the **Audio** tab, select the **Input:** and **Output**: soundcard from the pull down menus.
- Click OK to exit **Settings**.
- ***__IMPORTANT NOTE__*** Make sure that Windows sounds are turned off and are NOT feeding the sound card being used for WSJT-X.
- On the lower left side of the main screen, there is a pull down menu to select bands. When you click on it, you should see a frequency for each band. If the frequency is not displayed, it will be necessary to do a one-time reset of the default list of suggested operating frequencies.
- At the toolbar, go to **File->Settings->Frequencies**. **Right click** on the table and select **Reset**.
- When you are finished click **OK** to exit settings.
- Before you run **FT8**, it is important to make sure that your computer time is correct. If your PC clock time is off by more than a second or two, **decodes may not occur.**
- ***Dimension 4*** or **Meinberg NTP** can be used to synchronize your computer's clock, if you're running a Windows-based operating system. An internet search with your browser should find them.

Getting Started

- There are a number of WSJT-X digital modes. This info will only address the **FT8** mode.
- With your transceiver turned on, from the band pull down menu, select 20 Meters. Your radio should switch to 14.074 MHz. You should hear **FT8** signals.
- The vertical dB meter (lower left corner) should be green. If the receive level is too high or too low it will turn red. Adjust your sound card's *Recording Device* level control if necessary.
- For transmit, adjust the sound card's "*Playback Device*" control to the proper level to.
- When you start WSJT-X, the main window will appear.
- In that window, at the top toolbar, click on the "**Mode**" pull down menu. Select **FT8.**
- In addition to the main WSJT window if you **DO NOT** see the ***Wide Graph*** waterfall display, go to the top tool bar, click on **View**, then select **Waterfall.**
- If your transceiver has the feature, **lock your transceiver's VFO dial** so it doesn't get bumped.
- Unlike CW & SSB, select your transceiver's **WIDEST RECEIVE FILTER**, as the entire 2 KHz+ passband is decoded by the WSJT-X

software. If you limit your receiver bandwidth, you may miss decoding stations that answer your CQs.

- In order to decode **FT8** signals, the "**Monitor**" box (above the **black** frequency box) must be **GREEN**. If the Monitor box is gray, click on it. When it is green, you should start to start to decode signals. **FT8** signals during the last few seconds of every full 15 second receive cycle.
- With the **Auto Seq** box checked, once you receive a response directed to you, every 15 seconds, depending on the message that is decoded, the WSJT-X software will automatically step through the next appropriate message until the contact is completed.
- You can manually end your transmissions at any time by hitting either the **Halt Tx** or Enable Tx buttons.
- The simplest way to answer a station is to double click on the line containing the call in the **Band Activity** column. If the **Enable Tx** is on, you should start transmitting at your next 15 second TX cycle.
- Leave the **Rx=Tx** box **UNCHECKED.** However, even with the **Lock Tx=Rx** box unchecked, if you simply double click on a station to want to call, both the red (TX) and green (RX) brackets are moved to that frequency. This results in your transmitting on the other station's TX frequency.
- A **GREEN** Rx marker will appear over that station's frequency. (**NOTE** The position of the green Rx bracket has no effect on which part of the FT8 passband is decoded….The **entire FT8 passband** is decoded. The green marker useful to check the activity on the frequency of the station that you called.
- **Important Note** - When multiple stations call on the same frequency, very often **none** are decoded.
- If a station that you called has the green marker over it and comes back to someone else, your **Enable Tx** will change from red to gray and will inhibit your further transmissions until you enable it again.
- NOTE - If your TX frequency is more than 60 Hz away from the station you are calling and he comes back to another station, your further transmissions will NOT be inhibited.
- **SPLIT - A more effect way to answer a CQ:** First, use your mouse to hover the cursor over a quiet spot on the waterfall. Then while holding down the **SHIFT** key, **Left-Click** the **mouse.** The **RED** TX marker will appear over your hopefully quiet transmit frequency.
- When you see a station in the **Band Activity** column that you want to work, hold down the **ALT key** then **double click** on the line containing

that station's call. You now have set up for split operation and have improved your chances of being decoded by that station.

- **Remember, to run split, you must first UNCHECK the "Lock Tx=Rx" box.**
- Don't change your TX frequency while transmitting. Your signal will NOT be decoded.
- If the station you answered continues to call CQ, there may be others also using your TX frequency. Hold down your **SHIFT** key and **Left mouse click** as you point to another, hopefully quieter, frequency.
- If you start transmitting more than a few seconds late into your 15 second TX sequence, your signal probably will **not** be decoded.

Calling CQ yourself:

- Before you call CQ, make sure there is a red **Enable Tx** box and not a grey **Enable Tx** box.
- Make sure that you have checked both the **Auto Seq** and the **Call 1st** boxes.
- Normally, call CQ with the **Tx even/1st** box **UNCHECKED**.
- Before calling CQ, wait a few sequences so you can identify what appears to be a quiet frequency on the waterfall.
- Don't be afraid to send CQ very low **(>200** Hz) or very high (**<2400** Hz) on what appears to be a quiet frequency on the *Wide Graph* waterfall. Usually, both ends are often less crowded than the middle of the 200-2400 Hz frequency range.
- If you get no answer after 5 minutes of CQs, try another frequency.

Additional tips:

- The maximum number of minutes that you can send your 15 second sequence transmissions is determined by the Watch Dog timer. (File/Settings/General/Behavior/Tx watchdog).
- The bottom right corner of the main WSJT screen shows how many minutes remain in the Watch Dog timer. The default is 6 minutes, i.e. "WD:6m"
- You can find **Mouse Commands** and **Keyboard Shortcuts** in the '**Help**' pull down menu.
- You can access the ***On Line User Guide*** and ***Local User Guide*** in the '**Help**' pull down menu.
- If a station you are working continues sending you the same message multiple times and is not progressing to the next message, there may be

QRM on your frequency. Try doing a **Shift-Click** with your mouse, while pointing to a clearer frequency on the waterfall display.

- To see who, around the world, is copying your FT8 signals, check out the PSKreporter website: https://pskreporter.info/pskmap.html
- Another place to check FT8 spots is at the HamSpots website: http://hamspots.net/ft8/

I hope that this info will be of some help to you in setting up the WSJT-X software and using the FT8 mode more effectively.

Editor's note: if you want to interface WSJT-X with N1MM+ for contest operating, you will need to do three things:

1. *Use N1MM+ version 1.0.6731 or later.*
2. *Load and run JTAlert which can be found here.*
3. *Have a way to allow both programs to talk to your rig, ie share the same COM port. LP Bridge is software that is widely used to do that, look here. The N1MM+ instructions for making setting this up can be found here.*

Also, note that October QST has a big article on the digital modes with much additional information.

Rich K1HTV (center) giving the Blue Ridge Chapter of PVRC a lunchtime briefing on FT8, while Tom WA2BCK (l) and Dick W2YE listen attentively. (W4AAW photo)

Fowlfest Fotos– Ulis K3LU

Todd WB2ZAB burning up the ~~bands~~ grill

The gang chowing down

Nice shot of Seneca Lake

Resources for Getting Contest Smart – John K3TN

Sponsored by the World Wide Radio Operators Foundation, Ken K4ZW announced two upcoming webinars aimed at contesters:

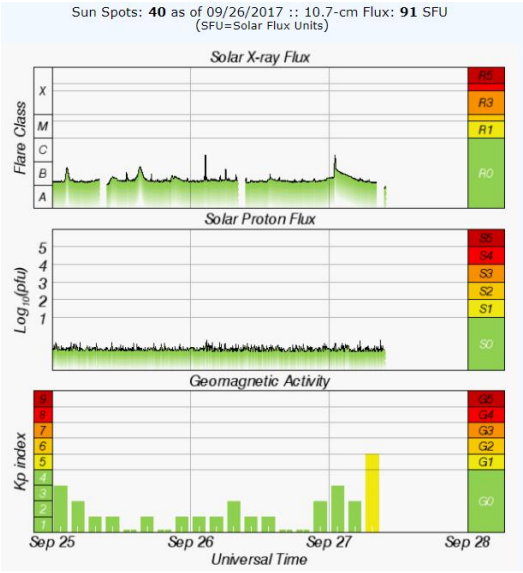
> **Wednesday, October 4, 9 PM EDT (Thursday, October 5 - 01:00 UTC)**
> **A Look at Propagation for the 2017/2018 Contest Season**
> Registration: link
>
> K9LA will review the status of Cycle 24 for the next half-year, andwill discuss how the contest bands will be affected. Bonus - He'll also tell host K4ZW whether the lowbands will open this year during his XW4ZW lowband DXpedition or whether to bring extra beer money and a deck of cards.
>
> **Wednesday, October 11, 9 PM EDT (Thursday, October 12 - 01:00 UTC)**
> **Contesting! It's a fun game. Let's do it the right way.**
> Registration: link
>
> W5ZN discusses the ethics of radiosport and why following the rules matters!

Tim K3LR also announced that four years of presentation slides and five years of videos from Contest University sessions at the Dayton Hamvention are available at the Contesting University website. Among the presenters you'll find PVRCers Frank W3LPL and Dan K2YWE.

Membership News – Tim N3QE

PVRC did not add any new members in the latest reporting period.

Chapter leaders please remember to complete the Meeting Attendance Report. Members can check and update their roster details via the Roster Lookup.



Upcoming Contests and Log Due Dates

Contests This Month

- **Oct 7 – Oceania DX SSB**
- **Oct 7 – CA QSO Party**
- **Oct 14 – Oceania DX CW**
- **Oct 21 – Worked All Germany**
- **Oct 28 – CQ WW SSB**

Logs Due This Month

- **Oct 4 – All Asian DX SSB**
- **Oct 12 – SARTG RTTY**
- **Oct 16 – ARRL UHF**

See WA7BNM's Contest Calendar for more detail and the latest information.

Editors Final Word – John K3TN

Easy to tell the "real ™" contest season is nearing – I got the call from Frank W3LPL for volunteers to help get his vertical receiving array back up in his neighbor's field and spent the morning tromping around in the high grass with several others. The CA QSO Party is the other indicator – that always serves as a fun domestic "get the juices running" event.

Thanks to John N3AM and Rich K1HTV for great submissions this month. You can now get points to PVRC awards for Newsletter submissions! Send 'em to jpescatore at aol dot com.

From the PVRC Treasurer – Tom K3AJ

PVRC has chosen not to implement an annual Dues requirement. We depend on the generosity of all of our club members to finance our annual budget. In addition, active PVRC members are expected to participate and submit logs for at least two PVRC Club Competition contests per year.

When contemplating your donation to PVRC, each member should consider the benefit you are receiving from PVRC and its many opportunities for your personal growth in our wonderful hobby, then donate accordingly.

Direct donations to PVRC via Credit Card or PayPal may be made by clicking this "Donate" button and clicking the next Donate button that appears on your screen:

Donations to PVRC are not tax deductible

Eyeball QSO Directions

The latest info on local club meetings and get together will always be sent out on the PVRC reflector and posted on the PVRC web site.

NW Region: Meetings are generally held on the third Tuesday of each month at: Chef Lin, 417 S Jefferson St. Frederick, MD 21701 Phone #: 301-620-0664(2675) The meeting begins at 7:00 PM.

Contact: Jim WX3B

DC Metro: Meets monthly the second Monday of each month, except June, July & August). The location alternates between the below MD and VA locations. Pre-meeting dinners start at 6:00 pm and meetings start at 7:30 pm.

VA LOCATION: Anita's, 521 E. Maple Ave, Vienna, VA. Tel: 703-255-1001. Meets at this location during the months of February, April and October.
Contact: Rich NN3W

MD LOCATION: Max's Café. 2319 University Blvd W, Wheaton MD 20902. Tel: 301-949-6297 People usually begin arriving at the restaurant around 6:00. Meets at this location during the months of January, March, May, September and November. Contact: Art K3KU

The Laurel, MD Region: Bill N3XL The PVRC get-together is held at the first LARC meeting each quarter at the clubhouse.

The Annapolis Crew: Dan K2YWE Meetings are held on the 4th Wednesday of each month at Broadneck Grill in Annapolis. We gather at about 5:30 PM and order dinner about 6. We break up usually before 8 PM. E-Mail K2YWE to be put on the e-mail reminder list.

PVRC-NC: The **PVRC-NC East** chapter meetings are held at Manchester's Bar and Grill on the 9100 block of Leesville Rd. in North Raleigh, with "QRM" beginning at 6:00pm and the dinner meeting following shortly thereafter. The meeting is held monthly on the 1st Thursday of most months, cancellations or changes usually announced on the PVRC-NC website.

The **PVRC-NC West** chapter meets the 3rd Monday of each month (except December) at about 7:00 PM at Hams Restaurant, 414 S. Stratford Rd., Winston-Salem on the south end of the Thruway Shopping Center. We meet in the front meeting room of the restaurant. A wide variety of cold 801s and Sports bar menu available. Contact Henry Heidtmann W2DZO, full info at http://www.w4nc.com

Over the Hill Bunch: The group meets for lunch at noon alternately in Maryland at the Sir Walter Raleigh Inn 6323 Greenbelt Rd, Berwyn Heights, MD or in Virginia at Anthony's restaurant in Falls Church. Meetings generally are held on the last Wednesday of the month and are subject to change. Meetings are announced by email.

All PVRC members, non-members interested in membership and guests are welcome. For information contact Roger Stephens, K5VRX, 703-658-3991 for Virginia meetings; or Cliff Bedore W3CB or get on 147.00 for Maryland meetings.

Downtown Lunch Group: Meets: At 12 o'clock noon on the first Wednesday of every month in Downtown DC.

Location: R.F.D. Washington, 810 7th St., N.W. Washington - Metro (Green Line) at Gallery Place Station

Meeting since April 2005, PVRC'ers, contesters, DX'ers, and others coming through this area have been meeting for lunch in the Metro Center area of downtown Washington, DC. If you give him enough notice, regular attendee Fred, K3ZO, may bring you your 3-land QSL bureau cards! We invite and encourage you to join us every month for good food, good company, and good conversation. If you have any questions feel free to email or call W3DQ or our co-convener, Rich NN3W. Hope you can join us!

Southwest VA Chapter: The Southwest VA group meets each Wednesday at about 8:30 AM at Hardees at 20265 Timberlake Road in Lynchburg, VA. This is an informal gathering, but normally has about 10-12 attendees. Contact Mark Sihlanick N2QT, Tel: 434-525-2921

Eastern Shore Chapter: Meets every three months, on the second Saturday of April, July, October and January at noon. In keeping with the tradition established by SK Dallas W3PP we will also meet at the contest station of Eric WG3J one hour before the start of most major contests. Contact Eric Hudson WG3J

Location: Delmar Pizza, north west corner of the intersection of highways 13 and 54 in Delmar, DE

Southern Maryland Chapter: Currently on hiatus, if interested in meeting contact the Chapter Chair, Tom Shelton, ND3N via email or (240) 434-3811

Colonial Capital Chapter: Meets the 2nd Thursday of each month at 8:30 am
Location: Hot Stacks Restaurant, 6495 Richmond Rd, Williamsburg, VA 23188
757-565-1105 Contact: Bill Conkling NR4C

The Tidewater Chapter meets the 3rd Tuesday of every month at Frankie's Place for Ribs located in the Fairfield Shopping Center on the corner of Kempsville Road and Providence Road in Virginia Beach. The meeting starts at 7:00 PM. All amateurs are invited.

Contact either Chapter Chair: Don Lynch, W4YZT, or Ron Young, W8RJL

Blue Ridge Chapter of PVRC will welcome members and visitors. Always 1st Thursday at noon.

Place: Smokin Willy BBQ, 201 N. Maple Avenue, Purcellville, VA

Contact: Mike W4AAW - 571-510-2535

If you'd like to add or correct a listing, contact K3TN for inclusion in the Newsletter!

Now a Word From Our Sponsors

PVRC doesn't ask for dues, but the Club does have expenses. You can also support the Club by buying from the firms listed who advertise in the newsletter!

QSL CARDS By LZ1JZ

WWW.LZ1JZ.COM

By Scott KA9FOX
•Free Ham Radio Classifieds (most popular ham swap site)
•Low Cost Web Hosting, Email & Domain Name Services
•Web Design & Development
http://www.QTH.com

Your source for DX News!

The Daily DX - is a text DX bulletin that can be sent via e-mail to your home or office Monday through Friday and includes DX news, IOTA news, QSN reports, QSL information, a DX Calendar, propagation forecast and much, much more. With a subscription to The Daily DX you will also receive DX news flashes and other interesting DX tidbits. *Subscriptions are $49.00 for one year or $28.00 for 6 months.*

The Weekly DX - is a product of The Daily DX that can be sent weekly to your home or office via e-mail in the form of a PDF (portable document format). It includes DX news, IOTA news, QSN reports, QSL information, a DX Calendar, propagation forecast and graphics. *Subscriptions are $27.00 for one year.*

Get a free two week trial of The Daily DX and The Weekly DX by sending a request to **bernie@dailydx.com**.

The Daily DX
3025 Hobbs Road
Glenwood, Maryland 21738
Phone: 410-489-651
Skype w3ur-bernie

Upgrade Your Shack for Contest Season!

DX ENGINEERING

NCC-2 Receive Antenna Variable Phasing System

The NCC-2 now combines the NCC-1 Phase Controller and our RTR-2 Receive Antenna Interface technologies into one unit. It features enhanced balance functionality, expanding its ability to phase between two different types of antennas. For those with antenna space constraints, you can easily null out noise by phasing your transmit and receive antennas. Or use two active verticals or loops with built-in bias tee that operate from 13.8 up to 21 Vdc.

We've also expanded the NCC-2's versatility with internal slots for the new plug-in versions of our Receiver Guard 5000HD and RPA-2 Preamplifier.

DX ENGINEERING

Footswitches

Go hands-free and speed up your operating. These new rugged PTT footswitches from DX Engineering blend performance and value. You have three options: a budget friendly plastic model, the stalwart cast iron version, and a new style with an extra-wide pedal—perfect for enthusiastic stomps.

bhi

Noise Cancellation Products

Noise Cancellation Products

bhi Noise Cancellation Products harness cutting-edge digital signal processing (DSP) technology to enhance the audio quality of incoming radio signals. By removing the noise, the improved audio makes it much easier to discern weak signals. DX Engineering now carries bhi Noise Cancellation Products, plus bhi accessories like switches, audio cables, adapters and extension speakers.

New!

INRAD international radio

Microphones

INRAD has just introduced a line of quality microphones boasting performance and value for Hams at every level. Each one has its own specialized dynamic element and unique style. They all come with a 3-pin XLR to 1/8" adapter cable for easy hookup with the appropriate radio adapter. See them all now by typing keywords "INRAD Microphone" into the search box at DXEngineering.com.

YAESU ICOM KENWOOD ALINCO

Email Support 24/7/365 at DXEngineering@DXEngineering.com

DX® ENGINEERING

Showroom Staffing Hours:
9 am to 5 pm ET, Monday-Saturday

Ordering (via phone):
8:30 am to midnight ET, Monday-Friday
8:30 am to 5 pm ET, Weekends

Phone or e-mail Tech Support: 330-572-3200
8:30 am to 7 pm ET, Monday-Friday
9:00 am to 5 pm ET, Saturday
All Times Eastern I Country Code: +1
DXEngineering@DXEngineering.com

800-777-0703 | DXEngineering.com

HAM RADIO OUTLET

WWW.HAMRADIO.COM

HRO IS FAMILY OWNED AND OPERATED!

IC-9100 | *The All-Round Transceiver*

• HF/50MHz 144/430 (440) MHz and 1200MHz*[1] coverage • 100W on HF/50/144MHz, 75W on 430 (440) MHz, 10W on 1200MHz*[1] • Double superheterodyne with image rejection mixer

IC-7851 | *HF/50MHz Transceiver*

• 1.2kHz "Optimum" roofing filter • New local oscillator design • Improved phase noise • Improved spectrum scope • Dual scope function • Enhanced mouse operation for spectrum scope • More features

IC-7700 | *HF/50MHz Transceiver*

The Contester's Rig • HF + 6m operation • +40dBm ultra high intercept point • IF DSP, user defined filters • 200W output power full duty cycle • Digital voice recorder

IC-7600 | *All Mode Transceiver*

• 100W HF/6m Transceiver, gen cov. receiver • Dual DSP 32 bit • Three roofing filters- 3, 6, 15khz • 5.8 in WQVGA TFT display • Hi-res real time spectrum scope

IC-7300 | *HF/50MHz Transceiver*

• RF Direct Sampling System • New "IP+" Function • Class Leading RMDR and Phase Noise Characteristics • 15 Discrete Band-Pass Filters • Built-In Automatic Antenna Tuner • Large Touch Screen Color TFT LCD

IC-718 | *HF Transceiver*

• 160-10M* • 100W • 12V operation • Simple to use • CW Keyer Built-in • One touch band switching • Direct frequency input • VOX Built-in • Band stacking register • IF shift • 101 memories

IC-7100 | *All Mode Transceiver*

• HF/50/144/430/440 MHz Multi-band, Multi-mode, IF DSP • D-STAR DV Mode (Digital Voice + Data) • Intuitive Touch Screen Interface • Built-in RTTY Functions

IC-2730A | *VHF/UHF Dual Band Transceiver*

• VHF/VHF, UHF/UHF simultaneous receive • 50 watts of output on VHF and UHF • Optional VS-3 Bluetooth® headset • Easy-to-See large white backlight LCD • Controller attachment to the main Unit with optional MBA-4 • Wideband receiver

IC-2300H | *VHF FM Transceiver*

• 65W RF Output Power • 4.5W Audio Output • MIL-STD 810 G Specifications • 207 alphanumeric Memory Channels • Built-in CTCSS/DTCS Encode/Decode • DMS

ID-5100A Deluxe | *VHF/UHF Dual Band Digital Xcvr*

• Analog FM/D-Star DV Mode • SD Card Slot for Voice & Data Storage • 50W Output on VHF/UHF Bands • Integrated GPS Receiver • AM Airband Dualwatch • FM Analog/DV Repeater List Function

IC-PW1 | *HF/50 MHz Amplifier*

• Wide freq. coverage - 1 kW from 1.8 MHz to 50 MHz (amateur bands only) • Wide ALC adjustable range • Full duty cycle • Auto antenna tuner built-in • Auto AC input voltage selector is employed • Current (Ip), Voltage (Vp), temperature, SWR and output power protectors are available

ID-880H | *Analog+Digital Dual Bander D-STAR*

• D-STAR DV mode operation • DR (D-STAR repeater)mode • Free software download • GPS A mode for easy D-PRS operation • One touch reply button (DV mode) • Wideband receiver D-STAR ready

IC-V80 | *HD 2 Meter FM Transceiver*

• Tough construction • 750mW loud audio • Powerful 5.5W of output power • IP54 and MIL-STD-810 rugged construction • Built-in CTCSS/DTCS • WX channel & weather alert function

ID-51A Plus | *VHF/UHF Dual Band Xcvr*

• 5/2.5/1.0/0.5/0.1W Output • RX: 0.52–1.71, 88–174, 380-479 MHz** • AM/FM/FM-N/WFM/DV • 1304 Alphanumeric Memory Chls • Integrated GPS • D-STAR Repeater Directory • IPX7 Submersible D-STAR ready

ID-51A PLUS2 | *VHF/UHF D-STAR Portable*

• RS-MS1A, free download Android™ application • New modes for extended D-STAR coverage • Terminal Mode & Access Point Mode allow D-STAR operation through Internet • DV & FM repeater search function • Dplus reflector link commands

5 Ways to Shop!

- RETAIL LOCATIONS – Store hours 10:00AM - 5:30PM - Closed Sunday
- PHONE – Toll-free phone hours 9:30AM - 5:30PM
- FAX – All store locations
- ONLINE – WWW.HAMRADIO.COM
- MAIL – All store locations

ICOM

ANAHEIM, CA (800) 854-6046	OAKLAND, CA (877) 892-1745	SUNNYVALE, CA (877) 892-1749	PORTLAND, OR (800) 765-4267	PHOENIX, AZ (800) 559-7388	WOODBRIDGE, VA (800) 444-4799	PLANO, TX (877) 455-8750
BURBANK, CA (877) 892-1748	SAN DIEGO, CA (877) 520-9623	NEW CASTLE, DE (800) 644-4476	DENVER, CO (800) 444-9476	ATLANTA, GA (800) 444-7927	SALEM, NH (800) 444-0047	MILWAUKEE, WI (800) 558-0411

*Except 60M Band. **Frequency coverage may vary. Refer to owner's manual for exact specs. *[1] Optional UX-9100 required. QST February 2017. The Icom logo is a registered trademark of Icom Inc. Toll-free including Hawaii, Alaska and Canada. Call will be routed to the nearest store. All HRO 800-lines can assist you. If the first line you call is busy, you may call another. AZ, CA, CO, GA, TX, VA, WI residents add sales tax. Prices, specifications and descriptions subject to change without notice.

HAM RADIO OUTLET

WWW.HAMRADIO.COM

HRO IS FAMILY OWNED AND OPERATED!

FTDX5000MP Limited | *200W HF + 6M Txcvr*

• Internal Power Supply • Two Totally Independent Receivers • Super Sharp "Roofing" Filters • High Performance Yaesu Custom-designed 32-bit Floating Point DSP • True Analog Meter Precision

FTDX3000 | *100W HF + 6M Transceiver*

• 100 Watt HF/6 Meters • Large and wide color LCD display • High Speed Spectrum Scope built-in • 32 bit high speed DSP /Down Conversion 1st IF **Call For Low Pricing!**

FT-991A | *HF/VHF/UHF All ModeTransceiver*

Real-time Spectrum Scope with Automatic Scope Control • Multi-color waterfall display • State of the art 32-bit Digital Signal Processing System • 3kHz Roofing Filter for enhanced performance • 3.5 Inch Full Color TFT USB Capable • Internal Automatic Antenna Tuner • High Accuracy TCXO

FTDX1200 | *100W HF + 6M Transceiver*

• Triple Conversion Receiver With 32-bit Floating Point DSP • 40 MHz 1st IF with selectable 3 kHz, 6kHz & 15 kHz Roofing Filters • Optional FFT-1 Supports AF-FFT Scope, RTTY/PSK31 Encode/Decode, CW Decode/Auto Zero-In • Full Color 4.3" TFT Display

FT-817ND | *HF/VHF/UHF All Mode Portable Transceiver*

Ultra Compact HF/VHF/UHF Multimode Rig • Wide Receiver Frequency Coverage • Two Antenna Connectors for Ease of Installation Front/Back • Outstanding CW Features • Versatile, Easy-To-See LCD Display • High Performance CollinsR Mechanical Filter Options • Internal Battery Power

FT-857D | *Ultra Compact HF/VHF/UHF*

• 100w HF/6M, 50W 2M, 20W UHF • DSP included • 32 color display • 200 mems • Detachable front panel (YSK-857 required)

Call For Our Low Price!

FT-2900R | *Heavy-Duty 75W 2M FM Transceiver*

• Massive heatsink guarantees 75 watts of solid RF power • Loud 3 watts of audio output for noisy environments • Large 6 digit backlit LCD display for excellent visibility • 200 memory channels for serious users

FTM-100DR | *C4FM FDMA/FM 144/430 MHz Txcvr*

• Power Packed System Fusion Transceiver • High Audio Output Power • Rugged Powerful Transmitter • Integrated 66ch High Sensitivity GPS • 1200/9600 APRS Data Communications • Voice Guide and Recording Function *Optional FVS-2 Required • Digital Group Monitor (GM) Function • Digital Clock & Timer Functions

FTM-400XD | *2M/440 Mobile*

• Color display-green, blue, orange, purple, gray • GPS/APRS • Packet 1200/9600 bd ready • Spectrum scope • Bluetooth • MicroSD slot • 500 memory per band

FT1XD | *144/430 5W Digital Transceiver*

• C4FM/FDMA • 1200/9600bps AX.25 APRS & GPS Recvr Built-in • Dual Band Operation w/Dual Receivers (V+V/U+V/V+U) • Wideband Receive/AM Bar Antenna/Aircraft Receive • 1266 Memory Channels w/16 Char Alpha Tagging

FT-2DR | *C4FM/FM 144/430 MHz Txcvr*

• Analog/C4FM Dual Monitor (V+V/U+U/V+U) • System Fusion compatible • 1200/9600 APRS Data Communications • Integrated 66ch High Sensitivity GPS • Wide Band Receiver • Snapshot Picture Taking Capability With Optional MH-85A11U

VX-8DR | *50/144/220/440*

50/144/220/440 • 5W (1W 222 MHz) • Bluetooth optional • Waterproof/ submersible (3' for 30 min) • GPS APRS operation optional • Li-ion Hi-capacity battery • Wide band Rx

FT-60R | *2M/440 5W HT*

• Wide receiver coverage • AM air band receive • 1000 memory channels w/alpha labels • Huge LCD display • Rugged die-cast, water resistant case • NOAA severe weather alert with alert scan

5 Ways to Shop!

- **RETAIL LOCATIONS – Store hours 10:00AM - 5:30PM - Closed Sunday**
- **PHONE – Toll-free phone hours 9:30AM - 5:30PM**
- **FAX – All store locations**
- **ONLINE – WWW.HAMRADIO.COM**
- **MAIL – All store locations**

YAESU
The radio

ANAHEIM, CA (800) 854-6046	OAKLAND, CA (877) 892-1745	SUNNYVALE, CA (877) 892-1749	PORTLAND, OR (800) 765-4267	PHOENIX, AZ (800) 559-7388	WOODBRIDGE, VA (800) 444-4799	PLANO, TX (877) 455-8750
BURBANK, CA (877) 892-1748	SAN DIEGO, CA (877) 520-9623	NEW CASTLE, DE (800) 644-4476	DENVER, CO (800) 444-9476	ATLANTA, GA (800) 444-7927	SALEM, NH (800) 444-0047	MILWAUKEE, WI (800) 558-0411

Toll-free including Hawaii, Alaska and Canada. Call will be routed to the nearest store. All HRO 800-lines can assist you. If the first line you call is busy, you may call another. AZ, CA, CO, GA, TX, VA, WI residents add sales tax. Prices, specifications and descriptions subject to change without notice.

HAM RADIO OUTLET

WWW.HAMRADIO.COM

HRO IS FAMILY OWNED AND OPERATED!

TS-990S | *200W HF + 6M Transceiver*

• World's first dual TFT display • 200W output on all bands • ±0.1ppm TCXO ensures both high stability and reduced power consumption • Triple 32-bit DSP's dedicated to main/sub receivers and band scope • Main receiver employs full down conversion, new mixer & narrow band roofing filters • Third order intercept point (IP3) +40dBm for highest level of RX performance (main receiver)

Call For Special Price!

TM-D710G | *2M/440 Dualband*

• V+V/V+U/U+U operation • Built-in GPS • Built-in TNC for APRS & DX-Cluster operation • 50W 2M & UHF • 1,000 memories • Dual receive • Green or amber backlight colors • Latest APRS firmware w/new features • Sky Command II remote functions

Call For Special Price!

TS-480SAT/HX | *HF + 6M Transceiver*

• 480HX 200W HF & 100W 6M (no tuner) • 480SAT 100W HF & 6M w/AT • Remotable w/front panel/speaker • DSP built-in

Call Now For Low Price!

TS-590SG | *HF/50MHz Transceiver*

• Equipped with 500 Hz/2.7 kHz roofing filter as standard • ALC derived from TS-990S eliminating spike issues • Antenna output function (shared with DRV connector) • CW - morse code decoder function • Improved 1st mixer • New PFB key with multi-function knob • New split function enabling quick setting • LED backlight with selectable color tone

TM-V71A | *2M/440 DualBand*

• High RF output (50W) • Multiple Scan • Dual receive on same band (VxV, UxU) • Echolink® memory (auto dialer) • Echolink® Sysop mode for node terminal ops • Invertible front panel • Choice of green/amber for LCD panel • 104 code digital code squelch • "Five in One" programmable memory • 1000 multifunction memory

Call Now For Your Low Price!

TH-D72A | *2M/440 HT w/extended RX*

• 5W TX, RX 118-524 MHz, VxU, VxV, UxU • APRS w/built-in 1200/9600 TNC • Built-in GPS, Built-in USB, digipeater • Echolink® compatible, • Mil-Spec STD810

Call For Special Low Price!

TH-D74A | *2M/220/440 HT w/D-STAR!*

• D-STAR compatible • APRS ready w/built in GPS • Color weather station information • Built-in KISS mode TNC • High-performance DSP voice processing • Standard compatibility for Bluetooth

Call For Low Price!

TS-2000/2000X | *HF/VHF/UHF Transceiver*

• 100W HF, 6M, 2M • 50W 70CM • TS-2000X 10W 1.2GHz • Built-in TNC, DX packet cluster• IF Stage DSP • Backlit front key panel

Call For Special Price!

TM-281A | *2 Mtr Mobile*

• 65 Watt • 200 Memories • CTCSS/DCS • Mil-Std specs • Hi-quality audio

Call For Special Low Price!

TH-K20A | *2M Handheld*

• 2M 5.5W • VOX • CTCSS/DCS/1750 Burst built-in • Weather alert

Call For Special Low Price!

5 Ways to Shop!

- RETAIL LOCATIONS – Store hours 10:00AM - 5:30PM - Closed Sunday
- PHONE – Toll-free phone hours 9:30AM - 5:30PM
- FAX – All store locations
- ONLINE – WWW.HAMRADIO.COM
- MAIL – All store locations

KENWOOD

ANAHEIM, CA (800) 854-6046	OAKLAND, CA (877) 892-1745	SUNNYVALE, CA (877) 892-1749	PORTLAND, OR (800) 765-4267	PHOENIX, AZ (800) 559-7388	WOODBRIDGE, VA (800) 444-4799	PLANO, TX (877) 455-8750
BURBANK, CA (877) 892-1748	SAN DIEGO, CA (877) 520-9623	NEW CASTLE, DE (800) 644-4476	DENVER, CO (800) 444-9476	ATLANTA, GA (800) 444-7927	SALEM, NH (800) 444-0047	MILWAUKEE, WI (800) 558-0411

✦Kenwood coupons expire 3/31/17. Contact HRO for promotion details. Toll-free including Hawaii, Alaska and Canada. Call will be routed to the nearest store. All HRO 800-lines can assist you. If the first line you call is busy, you may call another. AZ, CA, CO, GA, TX, VA, WI residents add sales tax. Prices, specifications and descriptions subject to change without notice.

HAM RADIO OUTLET

WWW.HAMRADIO.COM

HRO IS FAMILY OWNED AND OPERATED!

ACOM

ACOM-1000

• HF and 6 Meter 1KW Amplifier • Match 3:1 SWR with No Tuner • User Friendly QSK Operation • LCD Message Display • Single 4CX800a Tube • Vacuum Antenna Relays

Call For Additional ACOM Products!

ABR INDUSTRIES™
American Built & Reliable

218XATC-PL-(length) RG8x (240UF) w/PL259 Connectors Each End. Weather-Proof Heat Shrink Tubing.

- Stranded Center Conductor.
- 95% TC Braid + bonded 100% Foil Shield.
- Very Flexible, Light Weight, and Smaller than RG8 sizes.
- Non-Contaminating-UV Resistant-Direct Burial-Black Jacket.

233/2-G4-(length).

- Unique design **(Nickel Grommets 4" Spacing)** allows for easy attachment to a vehicle's body or truck bed to create a "ground-plane".
- Good option as a "buss-bar" in the shack.
- ½" wide tinned copper 38x48x8/384 10ga 53 Amps.
- Stocked in 1.5', 3', 5', and 10' foot lengths.

The SDRplay RSP

ALL MODE SDR RECEIVER

- **Continuous Coverage from 100kHz to 2GHz**
- **12-bit ADC Technology (not another 8-bit dongle!)**
- **Built-in High performance Front-end Filters**
- **Works with popular SDR Software (HDSDR, SDR-Console & Cubic SDR)**
- **Outstanding Reviews on eHam**
- **Call for special low price**

US TOWER

MA-40

• 40' Tubular Tower

Call For Latest Pricing!

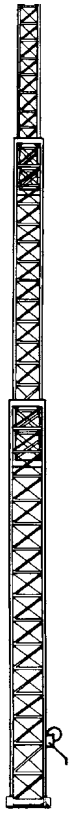
MA-550

• 55' Tubular Tower • Handles 10 sq. ft. at 50 mph • Pleases neighbors with tubular stream-lined look

Call For Latest Pricing!

All US Towers shipped by truck; freight charges additional.

BUY FROM HRO, The World's Largest US Tower Dealer



TX-455

• 55' freestanding crank-up • Handles 18 sq. ft. @ 50 mph • No guying required • Extra-strength construction • Can add raising and motor drive accessory • Towers rated to EIA specifications • Other models available at great prices!

TIMEWAVE TECHNOLOGY INC.

Navigator

The Premier Sound Card Modem!

- ***Quiet - hear what others miss!***
- ***Proven USB Sound Card built-in***
- ***Precise FSK & Winkeyer CW on board***
- ***Complete - Six FTDI COM ports***
- ***Universal Rig Control for every radio***
- ***Works well with HRD, M110A, Fldigi, WSJT & many more software programs***
- ***Front-Panel Audio & CW controls***
- ***USB connected and powered***
- ***Convenient - No annoying jumpers!***

5 Ways to Shop!

- **RETAIL LOCATIONS – Store hours 10:00AM - 5:30PM - Closed Sunday**
- **PHONE – Toll-free phone hours 9:30AM - 5:30PM**
- **FAX – All store locations**
- **ONLINE – WWW.HAMRADIO.COM**
- **MAIL – All store locations**

HRO is family owned and operated by active hams!

ANAHEIM, CA (800) 854-6046	OAKLAND, CA (877) 892-1745	SUNNYVALE, CA (877) 892-1749	PORTLAND, OR (800) 765-4267	PHOENIX, AZ (800) 559-7388	WOODBRIDGE, VA (800) 444-4799	PLANO, TX (877) 455-8750
BURBANK, CA (877) 892-1748	SAN DIEGO, CA (877) 520-9623	NEW CASTLE, DE (800) 644-4476	DENVER, CO (800) 444-9476	ATLANTA, GA (800) 444-7927	SALEM, NH (800) 444-0047	MILWAUKEE, WI (800) 558-0411

Toll-free including Hawaii, Alaska and Canada. Call will be routed to the nearest store. All HRO 800-lines can assist you. If the first line you call is busy, you may call another. AZ, CA, CO, GA, TX, VA, WI residents add sales tax. Prices, specifications and descriptions subject to change without notice.